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ABSTRACT

This summary provides a record of the proceedings of a workshop series and Wingspread Conference that were part of a series of events relating to child and family policy issues sponsored by the National Forum on the Future of Children and Families. Chapter 1 introduces the issues related to young children and academic achievement. Chapter 2 addresses testing, testing policy and practices; the use of testing for tracking and retention; the effects of testing on curriculum and instruction; and child development and standardized tests. Chapter 3 describes alternatives to standardized testing and includes sections on elements and examples of alternative assessment and on accountability. Chapter 4 provides a discussion of alternative instructional approaches, including sections on literacy and mathematics instruction and the issue of whether alternative approaches work. The process of redirecting attention in the first years of school away from readiness testing, retention, and special placement (with emphasis on isolated skill development and retention of unrelated fact), and toward integration of the content of children's everyday experiences and broad-based learning, is discussed. Chapter 5 describes implications for policy and practice in sections on testing, curriculum and instruction, and retention and tracking. A bibliography of 37 references and an appendix of agendas and participants are included. (GLR)

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Improving Instruction and Assessment in Early Childhood Education

Summary of a Workshop Series

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Improving Instruction and Assessment in Early Childhood Education

Summary of a Workshop Series

M. Therese Gnezda,
Laurie Garduque, and
Tom Schultz, Editors

National Academy Press
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Preface

The workshop series and Wingspread Conference on Improving Instruction and Assessment in Early Childhood Education are part of a series of events that the National Forum on the Future of Children and Families has sponsored on current and emerging child and family policy issues. A joint project of the National Academy of Sciences' National Research Council and the Institute of Medicine, the forum was established in 1987 to promote an ongoing dialogue among scholars and experts in children and family issues and leaders in government, business, philanthropy, and the media. The forum provides a neutral setting for discussion of problems affecting children and families and the development of policy options and strategies to improve their health and well-being. Its mission is to enhance the policy-making capacity of the public and private sectors on behalf of children and families.

We organized the meetings to survey three major areas: testing, tracking, and retention practices with young children; developmentally appropriate alternatives for instruction and assessment; and strategies to institute and implement changes in policy and practice to support improved methods of instruction and assessment with young children. Each meeting brought together experts in early childhood education, testing, learning, and instruction; state and local policy makers; and local school practitioners. The workshop format used in all meetings was designed to foster an exchange of information and promote a dialogue on the issues (see the appendix for the agendas). We asked several of the participants to initiate discussion by presenting their views based on their research and experience.

The forum steering group is pleased to share this summary of those meetings in the interest of fostering further discussion on instruction and assessment in early childhood education. This summary provides a record

of the proceedings; the opinions expressed by the workshop participants do not necessarily reflect the views of the steering group. We have made this summary available to a wider audience in the interest of keeping these issues in the public domain and the focus of increased attention on the part of the researchers and policy makers.

On behalf of the forum, I want to thank the workshop participants for their contributions to this endeavor and for sharing their knowledge, information, and experience. A special note of appreciation goes to steering group member Eugene Garcia for his role in organizing and chairing the workshops and the Wingspread conference. We are indebted to M. Therese Gnezda for her careful distillation of the major issues and themes that emerged from the workshop discussions and her work on the summary. Tom Schultz of the National Association of State Boards of Education contributed to every step in the process. The forum's project director, Laurie Garduque, ably managed the process from conception to the production of the summary. The forum gratefully acknowledges the support of the Carnegie Corporation of New York, the A.L. Mailman Family Foundation, and the Johnson Foundation for the workshop series. We are also grateful for the support from the A.L. Mailman Family Foundation and the Spunk Fund for publishing and disseminating the summary. We hope that you find the issues raised throughout the meetings to be as important to the education of young children as did the workshop participants.

Julius B. Richmond, Chair
National Forum on the Future of
Children and Families

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1
Introduction: Young Children and Academic Achievement

The first years of school are a critical time for every child. In that time attitudes toward literacy, mathematics, learning, and school start to form, and confidence as a student begins to develop. While many children's early school experiences are successful, for a growing number of very young children today these years are when they turn off: instead of a pathway to success, their first school experiences amount to an early start on failure.

The education reform movement of the 1980s produced a drive for higher academic standards and greater accountability in school districts throughout the United States. Widespread alarm about the low academic achievement of many U.S. students in the middle grades and high school led policy makers to impose formal standards at many grade levels, including standards for children when they enter kindergarten, when they finish kindergarten, and when they are about to enter first grade. At the same time, the early childhood years gained recognition among policy makers and the public as a critical time for developing a sound foundation for future success, within school and beyond. These recently imposed requirements together with greater attention being given to early childhood programs have brought about the widespread use of standardized tests to decide the readiness of young children for entry into kindergarten or promotion to the next grade. Feeling the pressures for higher test scores and the burden of expectations for children's accelerated academic achievement, it has become more common for teachers to structure the curriculum around the academic content and skills to be covered by standardized tests rather than basing the curriculum on the broader educational and developmental needs of children.

Concerns have been voiced by many education professionals and groups about three interrelated trends:

- the widespread use of standardized tests scores to make "high-stakes" decisions about placing children in special tracks or retaining them in kindergarten an extra year;
- greater emphasis on teaching test-taking skills and curricula geared to the test to help young children achieve higher scores on standardized tests. Such teaching concentrates on rote skills, memorization, and drill and practice rather than the exploration and experimentation and grasp of basic concepts that are key to later learning;
- a dramatic increase in the number of children "flunking kindergarten," i.e., whose parents are told that their children must spend a second year in kindergarten or in a "transition program" to prepare for first grade. The numbers of parents being told to delay their child's enrollment in kindergarten or who are choosing to do so has also shot up.

Child development experts and education specialists have expressed concern that, in the name of raising student academic achievement in later grades, schools across the nation are giving these very young children a form of education that interferes with early learning and is actually *detrimental* to their later ability to learn and that widespread tracking, with its related social and individual stigmas, is preparing children to fail. A particular fear is that these policies and practices are selecting out some children who are really not at risk for school failure, but who are following a different developmental course than their age-mates.

The use of standardized tests with young children ages 4 to 8 has brought about an inappropriate alignment among testing, instruction, and accountability in formal education with potentially negative effects on how children learn and develop. While concern about young children experiencing failure so early in their academic careers has led to questions about the tests and the way test results are used, simply eliminating the use of tests or the practice of grade retention will not solve the problem. Policy makers expect some form or mechanism of accountability to be in place. Parents want feedback on their children's progress and the quality of education. And teachers need tools for measuring children's learning and development.

To explore these concerns, the National Forum on the Future of Children and Families, a joint activity of the National Research Council and the Institute of Medicine, in conjunction with the National Association of State Boards of Education (NASBE) convened three workshops and a Wingspread Policy Conference, supported by the Carnegie Corporation of New York, the A.L. Mailman Family Foundation, and the Johnson Foundation over a period from 1988 to 1990. These meetings brought together the wide-ranging perspectives of educators, researchers, and policy makers and included governor's aides, state legislators, state education officials, school board members, principals, classroom teachers, early childhood professionals, and experts in testing and measurement, teacher training, and learning and instruction (see the

appendix for the agendas and participants). Because the problem is recent and still unfolding, three background papers were also prepared to fill important gaps in understanding the problem (Gnezda and Bolig, 1988; Sulzby, 1990; Romberg, 1990).

The workshops, the Wingspread conference, and the background papers critically examined the causes and consequences of this new emphasis on formal academics in the first years of school, alternative methods of assessment and instruction, and the implications for policy and practice.

Throughout the meetings, workshop participants expressed the general view that, while higher standards and accountability in school systems are necessary, current testing policies for very young children and the resulting academic orientation of early education are legitimate concerns that every participant in the nation's education system, from parents to policy makers, must address.

This report summarizes the major issues and concerns that emerged from the meeting presentations and discussions. Chapter 2 describes testing policies and practices nationwide, their impact on assessment and instruction, and the consequences for young children. Chapter 3 describes alternative methods of assessment that are more appropriate for very young children than the standardized tests commonly used. Chapter 4 describes alternative teaching strategies for these children that are appropriate to how children learn and appear to build a better foundation for later school achievement. The examples given are for teaching literacy and mathematics. Chapter 5 presents implications for improving policy and practice.

2
Testing

When the first workshop was held, there was much concern but few data on the extent of testing of children in the early years of school nationwide. The forum and the National Association of State Boards of Education (NASBE) undertook a survey in October 1988 to collect information on a state-by-state basis. Telephone interviews were conducted with program specialists in early childhood education, testing or evaluation, and policy analysis in the departments of education in all 50 states. All states responded to the survey (Gnezda and Bolig, 1988). Other investigators have concurred in the survey's finding: testing of very young children has become widespread since about the mid-1980s (Cannella and Reiff, 1989; Meisels, 1989; Shepard and Smith, 1988).

The survey questions attempted to discover the extent of public school testing of prekindergarten and kindergarten children, why the tests are given and how the results are used, and the use of test scores in decisions about young children. Respondents were asked about the role of state education departments in determining and monitoring testing policy and practices and the relationship between state-funded prekindergarten for 3- and 4-year-olds and the testing of children prior to kindergarten.

TESTING POLICY AND PRACTICES

The survey found that districts in all 50 states use screening, developmental assessment, and/or readiness testing. These terms were found to be imprecise and used interchangeably. Respondents acknowledged that the vast majority of testing decisions are made at the local level. Consequently, many of the survey's results represent perceptions by state-level officials of local practice. In most of the states in which some form of testing is

required, the mandates originated with elected officials, primarily state legislatures.

Testing in State-funded Prekindergarten Programs: While more than half the states with state-funded prekindergarten programs say some screening or accountability testing takes place, testing in prekindergarten programs appeared to be largely the result of local decision making.

Screening Before Kindergarten Entry: Before children enter kindergarten, they have some form of screening in 39 states, including 19 states in which such screening is mandatory. This screening may be health-related or done to identify special student needs. Many respondents said that screening results were often a factor in parents' decisions to delay entry, denial of kindergarten entry by the school, or placement of children into extra-year transitional programs known as junior or developmental kindergarten.

Readiness Testing For Kindergarten: Although testing for readiness for kindergarten is mandated in only seven states, such testing occurs in some districts in 30 states. Tests used at this level include the Dial R, the Gesell, the Metropolitan Readiness, and the Peabody Picture Vocabulary tests.

During Kindergarten: Six states mandate first grade readiness testing, and it takes place in districts in an additional 37 states. Among the tests used are the California Achievement Test, the California Test of Basic Skills, the Iowa and the Missouri Kindergarten Inventory of Developmental Skills. The most common use of such testing is to decide whether to promote children to first grade, to place some children in special first grade programs, or to retain them in kindergarten for another year.

It was not possible, with state level data alone, to draw a clear connection between the testing of young children and placement decisions in kindergarten and first grade. States rarely collect data on the use of test results, and some respondents stressed that test results are only one of several factors in student placement decisions. However, the survey also found (Gnezda and Bolig, 1988:5):

> nearly all the respondents suspect that testing is a major factor in delayed entry into kindergarten, assignment to developmental kindergarten (pre-kindergarten for 5-year-olds) and transitional first grade, as well as an important determinant in decisions to have children repeat kindergarten. Some respondents suggested that between 10 and 50 percent of age-eligible children in their states are not entering regular kindergarten or being placed in developmental kindergartens.

A major finding was that there is wide local variation in both the tests and cutoff scores used to determine a pass or fail. The rationales for choosing particular tests or setting cutoff points had little to do with the content or validity of the tests in terms of what children need to be prepared for in first grade. Rather tests tend to be adopted based on the intensity of marketing

efforts by test publishers and factors such as ease of administration and cost.

Whether testing decisions are made locally or at the state level, workshop participants and survey respondents suggested that decisions are often made by people with limited understanding of the special needs and characteristics of young children or little knowledge of developmentally appropriate alternatives for assessment. State mandates to test children before kindergarten and first grade often originate with state legislators and governors, with concerns about accountability overshadowing the complexity and the consequences of these mandates. Local administrators and state department of education evaluation specialists who set testing policies also have a tendency to implement testing practices that are more appropriate for older children.

Meanwhile, the survey confirmed "a definite trend across the country" toward adding developmental kindergartens and transitional first grades. Respondents indicated that many districts in 28 states offer developmental kindergartens; 40 states have transitional first grades in at least some districts.

The survey found little state oversight or review of local test policies or practices. Only 17 formally review the results of prekindergarten testing prior to kindergarten and first grade, but this review is mainly for the purposes of gathering comparative data on schools.

The survey concluded that the trends toward increased testing and increased retention, tracking, and delayed entry of children in their first years of school are caused in part by "the general public's belief that delayed entry is beneficial to children, despite increasing evidence to the contrary."

THE USE OF TESTING FOR TRACKING AND RETENTION

The well-intended theory behind the widespread use of standardized tests is to provide a quick, simple, and uniform gauge of a child's readiness to advance to the next grade level. The use of standardized tests, most of which were developed for specialized uses (see Box 1), to make sweeping long-term decisions affecting children's lives has been termed *high-stakes testing*: instructional and curriculum decisions become dominated by a desire to "teach to the test." High-stakes testing reduces teacher control of instruction and narrows educational experiences to match what is on the test (Madaus, 1988; Meisels, 1989).

Workshop participants noted that as standardized testing has spread, parents have delayed their children's entry into kindergarten, and schools have increasingly decided either to hold back young children from entering kindergarten at age five, or to place children in extra year programs such as "developmental kindergartens" or a second year of "transition" to first grade. State education officials have estimated that from 10 to 50 percent of children who are legally old enough to attend kindergarten are not entering in part because

BOX 1
TESTING DEFINITIONS

SCREENING — use of measures designed to identify children for further diagnosis of special needs or special attention in school.

DEVELOPMENTAL ASSESSMENT — use of measures designed to provide information about a child's progress in developing specific skills and behaviors in comparison to other normal children of his or her age.

READINESS TESTING — use of measures or tests designed to determine whether a child will be able to meet the demands of kindergarten or first grade (most often used when the curriculum stresses formal academics).

ACHIEVEMENT TESTING — most often the use of standardized norm-referenced tests designed to determine a child's abilities to perform a limited set of academic skills or demonstrate basic knowledge of particular information.

test criteria have been used to judge them unready (Gnezda and Bolig, 1988).

Other experts estimate that in some school districts, 10 percent, 25 percent, 33 percent, and as many as 60 percent of kindergartners are deemed unready for first grade (Shepard and Smith, 1988). The principal reason that so many children are now being found "unready" is the widespread use of tests and higher (albeit developmentally inappropriate) academic expectations for young children. Lower-bound cutoff scores— which in fact vary by school district and are locally determined—are used to decide to put children who score below the cutoff into special tracks or to repeat a grade.

One of the claimed advantages to teachers of increased tracking and retention is to help them manage the classroom: the behavior problems of "unready" children are banished from regular classes. Some teachers also consider it useful to minimize the range of children's abilities in their classes so they can move the group through the material at approximately the same pace.

It is easy to see why, given frequent reports of pressure from supervisors to have all the children in their class score adequately on required tests,

teachers respond by narrowing the range of children in regular classes to those who seem most able to take the tests and do the preparatory work (Chaille and Barber, 1990; Cunningham, in press).

However, as research suggests, retention may have little if any effect on achievement and may actually lead to negative consequences for children. Early research (Raygor, 1972), comparing retained children to other children who were classified "at risk" but who started first grade on time, demonstrated slight improvement in achievement for the retained group. However, by the end of third grade, and with the exception of reading ability, this improvement essentially disappeared. Strikingly, by the end of fourth grade, Raygor also found no significant differences in achievement between children who had been recommended for retention prior to first grade but who had not been retained, and those who had never been recommended for retention.

Holmes's (1989) review of 63 controlled studies following comparison groups of children who had been retained and similar children who had not also raises important questions about the value of retention and suggests that retention actually leads to negative outcomes. In 54 studies, Holmes found that, when children moved on to the next grade, those who had been held back performed less well than those who had not. In this research synthesis, only nine studies showed positive effects of retention. In these studies children who were retained had received extensive individualized attention, and over time their early performance gains diminished.

Thus the supposed benefit to the child of retention and tracking, which is that his or her longer-term proficiency in school will be improved appears elusive at best. According to the workshop participants, the problem lies with the schools rather than with the "unready" children. In effect, schools are unwilling or unready to accommodate the differences in young children's knowledge and learning that occur as a function of individual development. The bulk of education research findings does not justify widespread retention and tracking of very young children, yet this is precisely the policy a very large number of U.S. school districts and individual schools now follow.

An extremely important finding regarding the effect of widespread testing and retention on very young children has to do with *which* children are more likely to be tracked or retained. Several surveys have found that the ones held back tend disproportionately to be boys, children from some minority groups (including children whose first language is not English), children from low-income families, and the youngest children (Gnezda and Bolig, 1988; Shepard and Smith, 1988).

The effect of this stratification is to create a higher-status track disproportionately made up of older children, girls, whites, and children from middle-and upper-income families. As many workshop participants commented, the social and emotional effects of this early segregation are hard to overstate, both on children's perceptions of each other, of themselves, and their

status in school. In addition, these high-and low-status tracks with different populations of children dominating them hinders teachers' efforts to foster the values of diversity and respect among their students.

Meeting participants reported that children in transition classes are often taught through rote learning and asked to perform only rudimentary intellectual skills that lend themselves to workbooks—such as recognition and repetition of facts, numbers and letters and sounds, comparing and contrasting, and memorization. These forms of instruction are particularly inappropriate for very young children because they neglect their innate curiosity, their need to relate concepts to real-life situations, and their capacity for higher-level skills, i.e., integrating, synthesizing, analyzing, and transferring information. So the instruction these lower-track children receive may not be the best foundation for later learning. When the separation from their age peers and social stigma are added, their social as well as intellectual development is hindered. In addition, research consistently finds a positive relationship between retention and dropping out of high school. Although most studies look at retention, regardless of when it occurred, as a single variable, Lloyd (1978) found an increased likelihood of dropping out for children who had been retained by the third grade. It is also important to note that retention commonly occurs in the first grade, and this, too, suggests a formidable link between early retention and dropping out (Lorrie A. Shepard, personal communication, 1991). Thus, the children who most need early school success are being disproportionately retained or tracked, with detrimental effects for the longer term.

It was clear to the meeting participants that the growth of tracking, supposedly to aid teaching and learning, ignores much research and experience showing that mixing of children with different backgrounds and ability levels in the first years of school can enhance the teaching and learning of mathematics and literacy skills (see below).

THE EFFECTS OF TESTING ON CURRICULUM AND INSTRUCTION

The widespread use of tests to evaluate very young children's readiness to be promoted to the next grade level has generated pressures on teachers to "teach to the test." Several national organizations have expressed concern about the resulting narrowing of curriculum on formal literacy and numeracy skills in the first years of school (National Association for the Education of Young Children, 1988; National Association of State Boards of Education, 1988).

Professionals note that spending many hours in drill and practice of isolated facts and skills related to test-taking can be detrimental to a very young child's education. Even children who have mastered these skills end

up spending the bulk of class time in repetitive rote learning, instead engaging in hands-on experiences leading to understanding and mastering new tasks and information that foster confidence, curiosity, and problem solving. Other children may appear deficient at reading or mathematics taught through drill-and-practice activities or during testing situations, yet these same children may have excellent reading or mathematics potential that then goes undeveloped and unrewarded.

Moreover, organizing early education around the concept of readiness as measured by standardized tests conveys a message to children and parents that the other ways a child can learn and excel with the stimulation of school are unimportant compared with the ability to perform on tests.

CHILD DEVELOPMENT AND STANDARDIZED TESTS

Experts agree there are legitimate reasons for using standardized tests with young children, shown in Box 2. Screening young children for possible physical handicaps or developmental conditions that could cause difficulties in school is useful, and readiness and achievement tests can help teachers plan suitable classroom activities or individualized instruction. At first glance, testing would also seem a rational way to determine if a child is ready for the challenge of school and to determine the skills and knowledge he or she has acquired.

However, as mentioned, the use of standardized tests for high-stakes decisions regarding retention and tracking raises concern. For young children, development is rapid and uneven, and a child who is unable to perform a specific task if tested in the spring before kindergarten may well be able to perform the task by the following fall. Most often, a test measures only whether a child's answer is right or wrong, and the social and behavioral requirements of testing situations pose special difficulties for young children.

Standardized testing situations require children to perform in ways that are unnatural and difficult for them, precisely because they are young children. Young children are not proficient test-takers. They have short attention spans and have trouble sitting for long periods. They often have difficulty accommodating to paper-and-pencil formats, following directions, and performing well in an unfamiliar environment with a stranger. Standardized testing situations are problematic for children, whether they are old enough to read or are responding to verbal directions. Standardized tests are usually administered to groups of children who must sit quietly for long periods, follow uniform directions that they may or may not interpret correctly, and respond to questions with only one correct answer that does not necessarily measure whether a child understands how or why he arrived at the correct or incorrect response. Therefore, a young child's knowledge of a specific subject area may not be easily discerned from standardized test results,

BOX 2
WHEN IS TESTING OF YOUNG CHILDREN APPROPRIATE?

Appropriate Reasons to Use Tests With Young Children:

- To identify children who need *further evaluation* for possible handicaps or learning problems;

- To help teachers plan learning activities for the whole class and for individual children;

- To use with other assessment tools, such as observation and documentation, to identify developmental and subject matter needs of the class and individual children.

Inappropriate Reasons to Use Tests With Young Children:

- As the only indicator to determine whether a child is promoted, retained, or placed in a special class or ability group;

- As the only or primary measure of school accountability;

- As the basis for making key instructional decisions so that what is taught is limited to what is covered by a test.

since such tests do not give children credit for any reasoning or knowledge they may use that is logical and appropriate but may not lead to the correct answers. As a result, young children frequently do not exhibit in formal testing situations the full range of knowledge, skills, and abilities that they possess. Although this is true for anyone in any testing situation, it is particularly onerous for young children because of the early negative consequences of high-stakes testing.

Furthermore, as noted by several meeting participants, most tests used for high- stakes purposes fail to meet professionally established standards for reliability and validity (e.g., American Educational Research Association, American Psychological Association, and National Council on Measurement in Education, 1985), the essential qualities of an adequate test. The tests fail to provide accurate information, and as a result decisions that may have lasting consequences are made on the basis of results that are seriously

flawed. For example, the Gesell School Readiness Test, which is widely used, has problems that are well documented (Haines et al., 1980; Meisels, 1989). The Gesell Institute claims that one-third of kindergarten-age children are unready for school, and the Gesell School Readiness Test is intended to identify these children who are at high risk of school failure. However, a key study found that half of the children deemed "ready" for kindergarten on the test did not have successful kindergarten experiences (Wood et al., 1984). Further follow-up did not support the notion that children whom the test identified as at risk were helped by repeating a year. The Brigance K and 1 Screen is another test widely used to determine young children's "readiness," even though it is not referenced normatively. Professional have long warned of the problems with using it, yet it continues to be administered for high-stakes purposes. Academically based tests such as the Metropolitan Readiness Test also present problems. Although these tests show a strong relationship ($r = .70 - .78$) to later performance on first grade measures, they are not 100 percent accurate as a predictor of school success. As a result of limited predictive validity, tests such as the Metropolitan Readiness Test mistakenly identify one out of three children as "unready" (Shepard and Smith, 1988).

Another problem is that sometimes only parts of the test are used. While it has since stopped the practice, Georgia used as its high-stakes test the California Achievement Test level 10 but administered only 64 of the 146 items on the original instrument. Professionals warned that basing decisions on such partial information can be misleading, yet officials in Georgia used the test to decide which children would be promoted in grade and which ones would not (Meisels, 1988). Public outcry brought this policy to a halt. Indeed, the concept of school readiness of very young children has been criticized: there may be no absolute standard of readiness amenable to quick, objective measurement.

A variety of alternatives to these practices exists. The workshop participants focused their attention on strategies that promote a complementary relationship between assessment and instruction grounded in an experimental and developmental approach to early childhood education. These strategies deemphasize the use of standardized tests for high-stakes decisions and, by addressing the unique developmental and learning needs of children ages 4 to 8, reduce the need for retention. Although these methods depend heavily on subjective measures (i.e., observation, interpretation, and analysis of behavior by individual teachers), proponents suggest that alternatives are superior to academically focused, test-driven methods. With proper training and implementation, these alternative strategies for assessment and instruction are closely aligned with and responsive to young children's educational needs.

The participants acknowledged that, in the long-term, other alternatives, including the development of valid and reliable standardized tests, as well

as greater use of criterion-referenced tests, may also contribute to improved methods for measuring achievement, demonstrating accountability, and informing instruction. However, participants indicated that few incentives exist in the current market for the testing industry to incur the costs of developing such instruments. An in-depth exploration of these alternatives was not included in the workshop sessions.

3
Alternatives to Standardized Tests

Fortunately, alternatives to the emerging, potentially harmful policies and practices of testing and instruction for very young children do exist. Instruction and assessment should be based on the manner in which young children learn and the ways they are able to best demonstrate their knowledge and skills. Appropriate instruction is geared toward each child's individual and increasingly sophisticated level of development. Appropriate assessment evaluates children not in relation to other children, but in relation to how they progress through developmental stages. Assessment and instruction should be linked, with assessment indicating each child's developmental level and thus his or her instructional needs. This chapter concentrates on alternative assessment methods described at the workshops as more appropriate for use with young children than standardized tests. Chapter 4 describes the instructional approaches presented that incorporate these assessment methods in innovative approaches to early education.

ELEMENTS OF ALTERNATIVE ASSESSMENT

Throughout the workshop presentations and discussions, it was clear that some form of assessment of children is needed to examine student progress, to help teachers plan meaningful learning experiences, and to provide accountability. Assessment of young children should be geared to their developmental characteristics and should also produce more complete indicators of children's abilities and achievement than standardized tests. Box 3 summarizes the key elements of assessment as described by the workshop participants.

Assessment should be based on a child's actual classroom activities. For example, a teacher might have each child individually read the same passage

BOX 3
ELEMENTS OF ALTERNATIVE ASSESSMENT

The alternative methods for measuring young children's progress are performance-based. They:

- are based on actual observation and several samples of the child's work;
- include information gathered over time from a range of classroom experiences;
- indicate a child's broad progress in basic skills, conceptual understanding, problem solving, and reflective thinking, as well as motivation toward learning and attitudes toward school;
- are based on an understanding of developmental sequences and individual styles of learning; and
- are geared toward providing information that helps the teacher teach the individual child.

from a story and then rate each on specific skills such as vocabulary and comprehension. In addition, a teacher could observe naturally occurring behavior such as when children help each other figure out words, choose books, or incorporate writing or reading into play. Such assessment is called "authentic" because it looks at a range of behaviors in a variety of activities as they occur in the classroom naturally instead of judging a child's knowledge and abilities through an artificial testing situation.

This kind of assessment is "performance-based," i.e., it is based on what children do in real situations and is concerned with how children learn rather than whether they have memorized facts. Such process-oriented information can be obtained through observation and interaction with children throughout the school day. Samples of children's work collected over the course of the school year can provide an assessment of their learning and progress in specific subjects such as mathematics and literacy. Such broad-based information can provide teachers, administrators, parents, and policy makers more complete information about what a child knows and can do and is more informative than a standardized test score. It also gives teachers,

administrators, and parents an authentic, detailed account of a child's mastery of information, skills, and progress, as well as his or her competencies, strengths, and weaknesses.

These techniques require teachers to tap into each child's developmental processes. They help teachers understand how children learn. They make teachers more skillful in recognizing why particular children are having difficulty with specific concepts or tasks and put teachers in a better position to help students. They may become better teachers as a result.

Methods for performance-based assessment can be standardized so that the information teachers gather and their analyses are not idiosyncratic. In other words, when another teacher, the principal, or the parent reviews the information, they would arrive at the same evaluation of children's learning as the teacher who collected the information. Several participants commented that standardizing the procedures helps legitimize this approach, and standardization can be attained when administrators, teachers and parents develop common goals and criteria. With standardization, these assessments become valid and more informative than a single test score. Because of multiple sources of information, they also provide a more comprehensive and complex picture of what children know.

ALTERNATIVE ASSESSMENT: EXAMPLES

The following examples, which were presented at the workshops, demonstrate how these alternatives to standardized testing can be used to measure the development of literacy in very young children.

Documentation and Reading Assessment Program: The Documentation and Reading Assessment Program documents the behavior children exhibit as they learn to read and write (Chittenden and Courtney, 1989). Descriptive information is drawn from a wide range of ways children use their reading abilities through the day: story time, free reading, and unplanned and incidental experiences (i.e., when a child playing with blocks recognizes that the word "blocks" begins with the letter "B" or recognizes that the letters on the milk carton form words.)

Teachers also gather descriptive information during the school year on a child's abilities, needs, and progress through a variety of techniques, including observations in informal and planned activities and portfolios of children's work. Children are assessed on a variety of reading and writing competencies as well as their interest and effort in reading and writing (Box 4).

When teachers and administrators use this approach, they increase their understanding of how children learn to read. Teachers share observations about developmental patterns and instructional strategies.

The success of the Documentation and Reading Assessment Program

BOX 4
ORAL READING ASSESSMENT SAMPLE

This form represents a common plan used by teachers for evaluating oral reading behaviors.

Child _____ Book/Story _____
Teacher _____ Date _____

Choice: Comments on selecting book.
Was it child's choice? Teacher's? Reasons?

Background: How familiar was the child with this book/story?

__ read it previously __ when?
__ generally familiar with book but had not read it
__ little/no familiarity

Comments: Child's *interest* in this book and/or in reading aloud. (Was the child relaxed or anxious? Interested? To what extent is this sample representative of the child's skill and attitude regarding reading?)

Comments: Child's *understanding* of the material (intonation, spontaneous remarks, use of picture clues, self-correction for meaning, responses to questions).

Comments: Childs *strategies* for reading (willing to guess; maintains momentum; seeks support from teacher; monitors for accuracy).

Source: E. Chittenden and R. Courtney (1989). Reprinted by permission of the authors.

depends on cooperation and support from teachers across grade levels and administrators who must develop common guidelines for observation and shared criteria. In this way, a measure of standardization is built into the assessment methods.

Cambridge Literacy Project: The Cambridge Literacy Project tries to ensure that children from different cultural backgrounds learn to read and write English. It attempts to meet children's individual needs in regular classes and to decrease the number of children in special placement, tracking, and retention as much as possible. The Cambridge approach also teaches children to critically examine their own reading and writing.

Assessment is cumulative and performance-based. Information on each child's development is collected over time. Teacher descriptions and examples of reading and writing are used, as well as occasional normative testing. This testing is used merely as one of several sources from which teachers develop individualized instructional strategies.

The Cambridge School Department is participating in developing a teacher's handbook for documentation-based assessment of children's literacy (Cambridge School Department, 1989). The draft of this document outlines several assessment techniques and measures along with rating forms, checklists, and inventories. One such format, the "Emergent Reading Interview," is an informal way to establish a baseline description of literacy understanding and skills. Teachers read with each child and then assess his or her ability to follow the story's plot, to understand that the story comes from print, and to recognize some letter sounds and words. Tape recordings of children reading can be analyzed for comprehension, accuracy, and overall reading level. The draft explains other assessment methods as well, including inventories (or summaries) of the characteristics of a child's early writing behaviors and his or her concepts about printed language.

Project Construct: Project Construct is a process-oriented framework for curriculum and assessment of children ages 3 to 7 that is being developed collaboratively by the Missouri Department of Elementary and Secondary Education and the University of Missouri Center for Educational Assessment (Boxes 5, 6, and 7). Project Construct is based on four major principles of child development. The instructional and assessment methods are derived from the belief that children have a natural drive to make sense out of the world; acquisition of knowledge and skills as well as the desire to use both are part of this process. From this perspective, learning occurs in diverse ways, at varying rates, and as an outgrowth of each child's unique interests and experiences. Therefore, children learn by acting on the environment to construct their own knowledge, understanding, and values through experiences with materials and people. According to this view, children also make predictable errors as they learn, and these errors often reflect the complexity of their knowledge and sophistication of their reasoning abilities. The curriculum is organized in four domains (sociomoral, cognitive,

BOX 5
PROJECT CONSTRUCT:
DOMAINS, AREAS, AND GOALS FOR STUDENTS

SOCIOMORAL DOMAIN
- Social Relationships
  - Build relationships of mutual trust and respect with adults.
  - Build relationships with peers.
  - Consider the perspectives of others.
  - Negotiate and apply rules.
- Dispositions
  - Be curious.
  - Take initiative.
  - Be confident.
  - Be creative.

COGNITIVE DOMAIN
- Logico-Mathematical Knowledge
  - Construct classificatory relationships.
  - Order things according to relative differences.
  - Construct numerical relationships.
  - Construct spatial and temporal relationships.
- Physical Knowledge
  - Act on objects and observe reactions.
  - Act on objects to produce desired effects.
- Conventional Knowledge
  - Know personal information.
  - Know about the community.
  - Know conventional notations, manners, and customs.

REPRESENTATIONAL DOMAIN
- Symbolic Development
  - Represent ideas and feelings through pretend play.
  - Represent ideas and feelings through movement.
  - Represent ideas and feelings through music.
  - Represent ideas and feelings through art and construction.
- Language Development
  - Use language for a variety of functions.
  - Expand and refine the form and organization of language.
  - Construct meaning from language.
  - Represent ideas and feelings through language.

PHYSICAL DEVELOPMENT DOMAIN
- Motor Skills
  - Develop motor skills for personally meaningful purposes.
- Health and Safety
  - Develop healthy living practices.

Source: Project Construct (1990). Reprinted by permission.

representational, and physical development) rather than along traditional subject matter lines. Educational goals for students have been developed for each domain (see Box 5).

In addition to standards for teacher evaluation, recommendations for teacher certification, and resources for in-service training, the final materials for Project Construct will include examples of classroom activities with accompanying curriculum guides and assessment methods. The assessment system is critical to Project Construct because it is linked directly to program goals and provides key information to teachers so that they can design learning experiences that met each child's educational needs.

There are two parts to the assessment system under Project Construct, the formative assessment program and summative evaluation. This assessment system represents a developmentally appropriate method of evaluating student capabilities, achievement and educational needs that are uniquely keyed to the Project Construct goals for students and that are intrinsically part of instruction. To use this system effectively, teachers must understand the educational and developmental principles, as well as the goals for students that are at the core of Project Construct. With this knowledge teaches will be able to choose activities and assessment methods that will provide a range of opportunities through which children can exhibit and teachers can observe specific learning and achievement. Box 6, Project Construct's Goals/ Experiences Grid, provides and illustration of how classroom activities can relate to the goals for students. This grid provides integrated curriculum ideas and guidance for assessment since it identifies behaviors that teachers may look for during specific activities to determine whether a child has attained the relevant goals.

Under this project, teachers will, at their discretion, be able to use a variety of assessment tools and instruments in order to gather and analyze information for either formative or summative evaluation. The emphasis is on formative assessment since it guides day-to-day learning experiences. Summative evaluations will be optional utilizing samples of the information gathered through formative assessment to summarize and interpret a child's educational and developmental accomplishments. Although Project Construct's proposed evaluation instruments are still under review, they represent strategies for collecting and interpreting performance-based evidence of student capabilities.

Project Construct will make available several information and nonstandardized data-gathering tools to facilitate observation and record keeping of each child's educational experiences throughout the day or week. These materials include the Classroom Observation Record, useful for jotting down informal comments and information significant to a child's development, and the Record of Classroom Experiences, which is designed to link specific observations and learning/assessment experiences. The materials also include the Goal Checklist for keeping track of each child's progress toward attaining the broad program goals for students, and the Indicator Checklist for recording

BOX 6

Project Construct — Goals/Experiences Grid — Draft Winter 1990

	Goals for Students \ Learning/Assessment Experiences	Aiming Activities	Art	Board/Card Games	Construction	Cooking	Distributing Things	Dramatic Play	Exercise Play	Experimenting	Listening to Stories	Meeting/Discussion	Music	Organizing Data	Personal Reading	Personal Writing	Sand/Water	Self Help
Sociomoral	Build relationships of mutual trust and respect with adults			●		●	●				●	●		●		●		●
	Build relationships with peers		●	●	●		●	●	●		●	●	●			●		●
	Consider the perspectives of others		●	●	●		●	●			●	●			●	●		●
	Negotiate and apply rules	●		●			●		●			●						●
	Be curious	●	●	●	●	●				●	●		●		●		●	
	Take initiative	●	●	●	●	●	●	●		●		●	●		●	●		●
	Be confident	●	●	●		●			●			●	●		●	●		●
	Be creative	●	●	●	●					●		●	●	●		●	●	
Logico-Mathematical	Construct classificatory relationships	●	●	●	●	●	●			●	●	●	●	●		●	●	
	Order things according to relative differences	●	●	●	●					●	●		●	●		●	●	
	Construct numerical relationships	●		●	●	●	●					●	●					
	Construct spatial and temporal relationships	●	●	●	●	●			●	●	●					●	●	
	Act on objects and observe reactions	●	●		●	●				●			●				●	
	Act on objects to produce desired effects	●	●		●	●			●	●			●				●	
	Know personal information		●					●				●		●		●		
	Know about the community										●	●			●	●		
	Know conventional notations, manners, and customs			●		●	●	●		●	●	●	●	●	●			●
Representation	Represent ideas and feelings through pretend play		●		●			●	●				●				●	
	Represent ideas and feelings through movement		●					●	●				●					
	Represent ideas and feelings through music							●	●	●			●					
	Represent ideas and feelings through art and construction			●	●			●						●	●	●	●	
	Use language for a variety of functions			●	●	●	●	●		●	●	●		●	●	●		
	Expand and refine the form and organization of language							●			●	●			●	●		
	Construct meaning from language			●		●		●			●	●		●	●	●		
	Represent ideas and feelings through language		●	●	●	●		●			●	●	●			●		
Phys.	Develop motor skills for personally meaningful purposes	●	●	●	●	●	●		●	●			●	●		●	●	●
	Develop healthy living practices					●		●	●	●								●

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information on performance related to specific curriculum areas. Box 7 provides an example of an Indicator Checklist for language development. The project materials also include a Student Evaluation Form, which will serve as a means of transferring, summarizing, interpreting, and evaluating the vast array of information accumulated over time into a condensed format. In addition, the Student Progress Report form will provide a format for narrative summaries of the information related to all Project construct curriculum domains and thus will function as a report card.

As proposed, assessment under Project Construct will also include a formal standardized instrument, the Inventory, which will have scoring rubrics and protocols to verify each child's progress toward goal attainment. When fully implemented, the Inventory may be used as part of summative evaluation and as one indicator for use in making placement decisions. The data for the Inventory assessment will consist of specific tasks, interviews, and ratings of portfolios of each child's work (Project Construct document, 1989, 1990 drafts).

ALTERNATIVE ASSESSMENT AND ACCOUNTABILITY

The alternative assessment methods described above and discussed at the workshops produce qualitative information across a wide range of children's understanding and skills. While their use and administration can be standardized, these methods do not easily provide aggregated information about groups of children, such as a class or a grade level in a particular school. However, summaries of class performance, such as the inventories used in the Cambridge program, can provide a more complete picture of children's learning than standardized test scores. These alternative assessment methods provide important indicators that allow teachers, administrators, parents, and policy makers to evaluate how well the schools teach very young children. Performance-based assessment is based on actual examples of child behavior and includes evidence of conceptual understanding, the ability to use and transfer knowledge across various situations, and the ability to reason and solve problems. This form of assessment includes evaluation of basic skills, not as the most important evidence of achievement, but as part of more complex learning.

Workshop participants agreed that these alternative methods have inherent costs that may exceed those associated with standardized testing. Although raised, these costs were not explored in detail during the meetings. Among the possible costs are: increased time and expenditures for developing and standardizing assessment instruments, training in the use of these methods for both teachers and administrators, and commitment of resources for ongoing collaboration within schools and across districts to ensure uniformity of method and standardization in interpretation of performance-based assessment.

BOX 7

Project Construct
Indicator Checklist
Representational Domain: Language Development

Observer _____ Observation Period _____

| Goal/Indicator | Student | | |

4
Alternative Instructional Approaches

Alternative approaches to instruction integrate our current knowledge and understanding based on research on the development of young children ages 4 to 8 and how they learn. Although the workshop examples presented here deal with literacy and mathematics, they reflect useful principles for teaching very young children other subjects as well. The key elements are summarized in Box 8.

According to workshop participants, in appropriate early childhood instruction, teaching is individualized. The child is encouraged to assume an active role in the learning process. Instead of the teacher's deciding where each child must begin, what he or she must accomplish, and the method the child will use, the child's experiences, knowledge, and skills dictate the goals, path, and style of learning. Teachers reward the child's initiative, help him or her to become an accomplished, capable learner, and ensure that the child masters the information or task.

This kind of instruction builds on each child's strengths and knowledge, adding content-oriented experiences that broaden understanding, conceptual development, and basic skills. Instead of being subjected to rote instruction, children initiate, experiment, and share their methods of constructing answers and acquiring new skills. They are encouraged to be motivated to achieve and to continue to be curious about the world. The classroom allows children to reflect, invent, develop new ideas, and communicate (Romberg, 1990).

Workshop participants noted social interaction between children and with the teacher is an important part of this kind of learning. As a result, having children of varied abilities and backgrounds in a single class provides unique opportunities for learning. Children learn from each other: a mix of academic abilities, experience, and developmental level fosters cooperative learning

BOX 8
ELEMENTS OF ALTERNATIVE INSTRUCTION

Instruction:

- Focuses on the developmental process of learning rather than fixed measures of academic achievement.
- Makes the child an active participant in the learning process rather than a passive receptor of information.
- Emphasizes experience-based hands-on learning.
- Is responsive to each child's developmental needs and learning style.
- Encourages interactions among children and with the teacher in a cooperative style.
- Defines the teacher's role as a facilitator of individual learning to ensure each child's progress.
- Uses performance-based assessment as feedback for individualized teaching of each child.

and creates a more exciting and challenging environment. All children can learn with less need for special placement, tracking, or retention in a grade.

As described in the meetings, the role of the teacher in these alternative approaches to instruction is mainly to support process-oriented, individualized learning and to keep providing challenges so each child progresses. Teachers do this better when they understand the component skills and concepts on which mastery of more advanced skills and knowledge is built. They must also recognize the range of children's developmental patterns. To keep providing challenges to children of varying developmental levels and skills, teachers need ongoing assessments that offer descriptive information. Appropriate instruction, therefore, incorporates performance-based assessment.

Several participants observed that institutional support is essential for

teachers to carry out these instructional strategies. Schools and administrators should provide teachers time and resources for in-service training. Administrators should allow teachers flexibility in scheduling and classroom management so that they can experiment with innovative instructional methods, consult each other, and take the time needed for ongoing assessment. Administrators need to help teachers, parents, and policy makers agree on the goals of the first years of school so these groups will recognize the validity, benefits, and effectiveness of instructional strategies appropriate with young children, as well as the importance of preparing children creatively and constructively for later school achievement.

ALTERNATIVE LITERACY INSTRUCTION

As described by the meeting participants, the appropriate way for very young children to become literate is not through rote memorization and drill but, as in the alternative approaches described below, by focusing on both reading and writing, conceptual understanding, and relating language use to everyday life.

Emergent Literacy: The emergent literacy approach is based on the idea that children become literate through a developmental process. A toddler may "read" books by labeling objects or commenting on the pictures in them. A preschooler may "read" books by telling the stories that go with the pictures. A kindergartner may accurately recite the words of a familiar book with the same intonation as when the book was read aloud. As a child develops emergent literacy skills, he or she may start recognizing letters and their sounds, begin to decode words, and then to read with comprehension. This approach postulates that children become literate as a result of environmental stimulation, but they also must be actively involved in the process. The emergent literacy perspective further suggests that children come to understand all aspects of language (reading, speaking, listening, and writing) in conjunction with each other. In other words, children do not learn to read before they can write, or vice versa. This approach also assumes that children become literate through real-life experiences with language, and that key components of their literacy development begin before they start school (Sulzby, 1990).

Emergent literacy instruction is process-oriented and individualized. The teacher helps each child understand each aspect of literacy by engaging him or her in meaningful activities that involve language use and experimentation. Rather than using workbooks and worksheets for memorizing spelling or vocabulary, the teacher offers young children opportunities to use reading and writing in every classroom activity. They may be informal interactions between teachers and children or among children, free choice activities, or formal assignments. Children exhibit literacy behaviors when they tell sto-

ries to accompany their drawings; they identify words while looking at books with each other; they follow printed words on the page with their finger while the teacher reads the words aloud.

In this approach, teachers do not try to restrict or prescribe specific literacy behaviors. They would not tell a child that he or she is "not really" writing, if he writes a story with scribbles or a string of letters or invents the spelling of words. Similarly, the teacher would not discourage a child from "reading" a story if his "reading" consists of retelling a story memorized from a favorite book.

Teachers using the emergent literacy approach depend on assessments of achievement, motivation, and competence with different assessment tools, such as:

- samples of children's writing;
- observations and descriptive records of how and when children use various language skills;
- teacher descriptions of a child's expression of concepts related to reading and writing; and
- checklists of literacy behaviors that each child exhibits (e.g., scribbles to represent text, names letters, "writes" stories with invented spelling, reads text).

For assessments to be meaningful, teachers and administrators must set consistent criteria so that any two teachers analyzing the same information will make essentially the same judgment of a child's progress.

Reciprocal Teaching: Reciprocal teaching is another approach to teaching literacy, focusing on improving reading comprehension (Palincsar et al., 1989). By encouraging young children of different backgrounds, developmental stages, and levels of reading ability to work together at reading and writing tasks, reciprocal teaching minimizes the need for special placement, tracking, and retention.

Reciprocal teaching utilizes small groups of children selected by the teacher, having a diversity of abilities, personalities, and work habits. Teachers work with the groups through structured dialogues that help children identify and understand the processes they use in understanding what they read. In these dialogues, the children question what is read, summarize the content, predict what will happen later in the text, and discuss each other's reading strategies. Teachers make sure that all children in the group participate; and that each child has a chance to be the group leader. As a result, teaching becomes a collaborative process; all children contribute to the discussion, participate in problem solving, coach each other, and discuss as a group the effectiveness of the various reading strategies (see Box 9).

During the year, teachers gather several kinds of information for assessing each child's progress. Two common methods are the analysis of tran-

BOX 9
RECIPROCAL TEACHING OF LITERACY

The following dialogue illustrates a text-driven discussion among some first grade students and their teacher.

The teacher reads this text:

"The pipefish change their color and movements to blend with their surroundings. For example, pipefish that live among green plants change their color to a shade of green to match the plants."

Clare (the child leading the discussion): One question that I had about this paragraph is: What is special about the way that the pipefish looks?
Keith (clarifying): So you mean the way that it is green?
Andy (elaborating): It's not just that it's green; it's that it's the same color as the plants around it, all around it.
Clare (continuing): Yes. That's it. My summary is this part tells how the pipefish looks and that it looks like what is around it. My prediction is that this is about its enemies and how it protects itself and who the enemies are.
Monty (adding to Clare's summary): They also talked about how the pipefish moves.
Keith (answering): It sways back and forth.
Andy (clarifying): Along with the other plants.
Teacher (prompting): What do we call it when something looks like and acts like something else? The way that the walking stick was yesterday? We clarified this word when we talked about the walking stick.
Angel: Mimic.
Teacher: That's right! We said—we would say—that the pipefish mimics the. . . .
Students: Plants.
Teacher: O.K.! Let's see if Clare's predictions come true.

Source: A.S. Palincsar and A.L. Brown (1989). Reprinted by permission of the authors.

scripts of group discussions and tests that measure reading skills. Assessment serves the dual function of evaluating individual growth and the progress of the whole class.

Kamehehameha Elementary Education Program (KEEP): The KEEP program was originally designed to promote reading achievement for first through third grade Hawaiian and part-Hawaiian children likely to have difficulties learning to read. It has evolved into a literacy program that teaches reading and writing to students of all ability levels. The KEEP program also makes learning compatible with children's cultural norms (Au et al., in press).

Social interaction is a central feature of KEEP's reading and writing instructional cycles. In the reading cycle, the teacher directs small group lessons that involve extensive child participation and discussion. The majority of the group's time is spent understanding the reading materials; the balance is spent on word recognition. The groups usually consist of children with varying abilities; through group work, children learn from each other. After a group session, children work independently, writing about what they have just read. This work is then shared with the group at the next meeting.

The writing cycle focuses on a "writer's workshop" in which children work together, from planning their writing through "publishing" a product. In this way, they learn about writing as a means of communication while mastering writing mechanics. Written work is shared and discussed with others.

The KEEP program uses assessment to help teachers improve each child's literacy. Assessment is based on classroom experiences and more than one aspect of literacy. Portfolios of the child's work are evaluated in terms of grade level benchmarks based on the state's language arts curricula, standardized achievement tests, and basal reading programs. Among the assessment procedures used to compile information for the portfolios are questionnaires measuring attitudes toward reading and writing, measures of reading comprehension, writing samples, records of teacher observations, and logs of voluntary readings. Teachers use checklists and profile sheets to summarize student progress.

These and other alternative approaches to teaching literacy produce proficient readers and writers, not by rote drill and practice, but by formal and informal interactions around a variety of printed materials, including children's own stories. These approaches deemphasize teacher-directed instruction and stress the social aspects of learning. Children learn with and from each other, and cooperation promotes the mastering of reading and writing. Assessment is ongoing, performance-based, and an essential feedback mechanism to guide instruction (Sulzby, 1990).

To use these approaches effectively, teachers must be trained so they understand the developmental processes of very young children. Such knowledge

allows teachers to identify behaviors that show progress toward conventional reading and writing and to plan appropriate instruction. Equally important, teachers need support from school systems, administrators, and other teachers and the freedom to tailor instructional strategies to each child's needs.

ALTERNATIVE MATHEMATICS INSTRUCTION

In recent years, American students' mathematics achievement at ages 9, 13, and 17 have shown gains in low-level computational skills and the solving of one-step problems, but American students still score poorly on questions that require application of mathematics skills and solving more complex problems (National Center for Education Statistics, 1985-1986). Thus, students must be taught mathematics so they will become capable problem solvers, not just recall number facts and computational algorithms. This distinction has been emphasized by the National Council of Teachers of Mathematics (NCTM), the National Science Foundation (NSF), and the Mathematical Sciences Education Board (MSEB), and other professional groups. Very young children can be prepared for later mathematics achievement better if they are encouraged to become involved with concepts in using mathematics in real-life situations. Effective mathematics education enables children to develop skills and confidence in reasoning logically and communicating mathematical knowledge (Romberg, 1990).

Workshop participants explored three instructional strategies for mathematics education that emphasize experiential learning. Project Construct, as introduced in Chapter 2, provides an example of an approach useful with children as young as preschool-age, while cognitively guided instruction and the problem-centered approach to mathematics education illustrate techniques designed for early elementary-age children.

Project Construct: The curriculum is based on a set of educational goals reflecting the values of a democratic society, principles of child development, and the belief that children learn most by constructing their own knowledge (Project Construct, 1990 draft). These goals, as discussed in Chapter 3, are organized around developmental domains. The basis of mathematics education in Project Construct is found in the cognitive domain and classified as logico-mathematical knowledge. Logico-mathematical knowledge focuses on understanding relationships among objects and ideas and involves the ability to classify and order things according to their similarities or differences and to understand numerical, spatial, and temporal relationships.

Project Construct promotes the notion that acquisition of knowledge and skills involves integration of development in all domains, and therefore activities usually enable children to work toward goals in more than one curriculum area at a time. The materials and learning environment encour-

age problem solving, free choice of learning experiences, and a range of difficulty to meet diverse needs related to ability and interest. Under this approach, children may work individually or in small groups, with teachers helping each child develop confidence as a learner through self-directed discovery, curiosity, and creativity.

In this approach teachers make significant decisions each day that influence their students' development. Teachers have a great deal of autonomy in selecting or designing activities and are responsible for creating the learning environment. Project Construct materials include prototype learning/assessment experiences, similar to lesson plans, to help teachers formulate and individualize teaching methods. These materials correspond to the developmental domains and project goals and include a rationale, examples of possible activities, multiple teaching strategies, and suggestions for assessment goals related to each learning experience.

In Project Construct teachers build learning experiences around what children already know, rather than focusing on what children do not know, so that knowledge can be refined, expanded, or transferred to broader contexts. Project Construct teachers promote learning through observation, questioning, and by making suggestions to help children expand their thinking. Assessment is ongoing, extensive, performance-based, and an integral part of instruction.

Cognitively Guided Instruction: Cognitively guided instruction is based on the belief that for children to use math skills with real understanding, they need to relate conceptual knowledge to computational procedures. It also assumes that children construct their own knowledge of mathematics from personal experience inside and outside the classroom; this knowledge is structured by the boundaries of the child's intellectual development (Fennema et al., 1989; Peterson et al., in press). Teaching is individualized to match each child's abilities to model, count, use abstract number facts, and symbolism. By discussing the strategies children use as they work through mathematics problems, teachers help children in building relationships between mathematical concepts and skills.

For example, the teacher could pose word problems to children and then listen to them explain how they work the problem. The teachers could ask children how they arrive at particular answers rather than limiting the discussion to whether the answer is right. Mathematics education under this approach does not involve rote learning of number facts. Rather young children learn number facts as they improve their mathematical concepts and skills through solving real problems.

In cognitively guided instruction, learning occurs in small groups or with the whole class. The children share their strategies for working problems. They learn from each other; they find there are many ways to solve mathematical problems. Hearing a child work through a math problem out loud,

the teacher—or the classmates—can help correct misconceptions or faulty reasoning.

In cognitively guided mathematics instruction, assessment is continuous and allows teachers to analyze the child's ability to solve problems and the underlying thought processes used. Teachers use informal observations and descriptive summaries of problem-solving behaviors, as well as children's responses to specific questions. The key to assessment lies in the teacher's ability to pose appropriate questions, listen to individual responses, and relate answers to the child's developmental level. Assessment provides feedback, which helps teachers plan appropriate learning experiences for each child.

Teacher training is important to the success of cognitively guided instruction. Through training, teachers increase their knowledge of what children at different developmental levels are likely to know about mathematics and how they solve problems. With this knowledge, teachers are able to individualize instruction, encourage cooperative learning, and understand each child's progress.

Problem-Centered Approach to Mathematics Education: In this approach, children increase their conceptual understanding and skills based on what they already know and in ways that are meaningful to them. As with cognitively guided instruction, this approach is based on solving mathematics problems rather than rote memorization and computational practice. This approach also emphasizes learning through social interaction and encourages children to develop enduring interest, curiosity, and motivation in mathematics (Cobb and Merkel, 1989; Cobb et al., 1989, Nicholls et al., in press).

Instruction encourages teacher-student and student-student interaction and involves small group and class activities. Teachers provide guidance, not by demonstrating or explaining techniques for solving math problems, but by clarifying activities and helping children understand mathematical symbols and processes. Teachers pose problems, and children, working in pairs or small groups, try solving them. The groups then share their methods for solving the problem with the class, and the class reaches consensus on the correct answer. Through this process, children learn to express and justify their problem solving strategies, to listen to each other, to persist in their attempts to find solutions to problems, and, ultimately, to broaden their repertoire of mathematical skills, facts, knowledge, and conceptual understanding.

Teachers strive to encourage child-centered problem solving (Box 10). They help children understand and explain their methods, ask provocative questions to stimulate thought, and help children discover for themselves why their solutions are right or wrong. Since teaching does not rely on individual paper-and-pencil seatwork or graded written work, it is more

suitable for very young children. An example of a child-centered dialogue is in Box 10.

Assessment is important, too. Teachers gather a great deal of information about each child's knowledge, conceptual understanding, and basic number facts and skills. This knowledge helps teachers decide how to help each child progress to higher levels of understanding and competence in math.

Teacher training and support are essential for the problem-solving approach to instruction. Teachers must adapt to a less directive role with their students and develop different activities to meet young children's varying needs. Teachers need to understand how children learn mathematics and what child behaviors indicate about mathematics knowledge.

The alternative ways of teaching mathematics to very young children described at the workshops engage them in investigations and problem-solving strategies, not just memorization of facts. Children learn to evaluate guesses, judge alternatives, and construct arguments as they try to figure out answers. Collaboration rather than competition encourages better understanding of the problems being discussed and enables children to learn from one another. The teacher's primary role is to structure opportunities for learning and help children grasp mathematical concepts; learning number facts becomes part of the process, but not the only activity.

In these alternatives, assessment is ongoing and performance-based. It guides further instruction as well as yields data on student progress. The assessments offer a more accurate and broader picture of a child's progress than does a standardized test score. These assessment methods offer a more complete picture for school accountability purposes.

DO ALTERNATIVE APPROACHES WORK?

The alternative approaches described above and discussed by participants have a proven track record in the classroom. Research on these child-focused alternatives to drill-and-practice teaching of very young children has demonstrated their efficacy. First grade children from reciprocal teaching classrooms, for example, compared with children from traditional classes demonstrated better independent listening comprehension, better understanding of what they read, and greater ability to solve problems using new information (Palincsar and Brown, 1989). Early research into the effectiveness of the KEEP program showed that KEEP children significantly outperformed children from regular classes on reading performance (Klein, 1981).

Evaluation of cognitively guided instruction and the problem-centered approach for mathematics instruction has shown significant benefits. When compared with children who were taught mathematics in the traditional manner, children from problem-centered classes were better at using their computational skills in a variety of situations and had better conceptual

BOX 10
PROBLEM-CENTERED MATHEMATICS DIALOGUE

This class activity was adapted from recommendations made by Wirtz (1977) and Labinowicz (1985). The teacher used an overhead projector, plastic chips, and a transparency of two ten-frames (Figure A). The teacher placed chips in the two frames to make patterns and then turned on the projector for, at most, two seconds. This procedure was repeated if the pupils said they needed a second look. The teacher then asked, "How many did you see? How did you see them?" This led to a discussion. Once, for example, the teacher showed the pattern shown in Figure B.

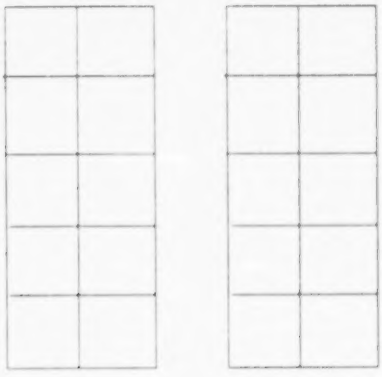

Figure A

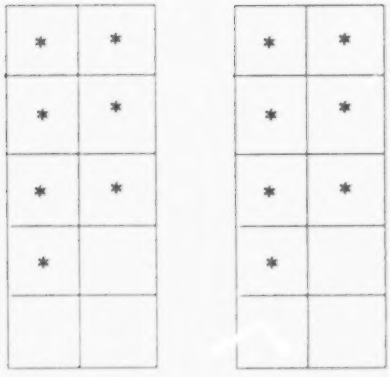

Figure B

Andy:	15, there's one more on each side. (He relates these patterns to the previous task, which had patterns of 8 and 5).
Teacher:	Did anyone see it in a different way?
Juan:	It's 14; there's 6 blank.
Teacher:	How did you figure that out?
Juan:	20 take away six is 14.
Teacher:	Oh, you know there were 20 squares all together and you saw 3 of them were empty here and 3 were empty on the other one?
Juan:	Yeah.
Teacher:	O.K., Jack?
Jack:	I saw 6 and 6 first, and that makes 12, but they both have one more, so it has to be 14.
Lisa:	I agree, it's 14.
Teacher:	How did you get 14?
Lisa:	I counted them up on my fingers.
Teacher:	Yes, Tricia.
Tricia:	(Leaves her desk and goes to the screen.) It's the same thing as the one we just did. It was 8 and 6 and you take 1 from the 8 and put it with the 6, and that makes 7 and 6. (The teacher had made patterns for 8 and 6 earlier in the session.)

The pupils were solving the problem at a variety of different levels. Juan, one of the most advanced students, understood the task in terms of subtraction. In contrast, Lisa recognized two patterns of seven and had to count to find the total. The practice of having children explain their solutions allows them to learn that problems can be solved in more than one way and improves their ability to verbalize their thinking.

Source: P. Cobb and G. Merkel (1989). Reprinted by permission of the authors.

understanding of mathematics. Children from problem-centered classrooms were also more interested in collaboration, cooperation, and the process of understanding mathematics than they were in conforming to other peoples' solutions to mathematics problems (Nicholls et al., in press).

Other research compared first and second graders who had cognitively guided mathematics instruction with those taught by traditional methods. The students from the cognitively guided classes were found to know significantly more number facts than those from other classes (Peterson et al., in press). This is particularly important because teachers in the traditional classrooms spent nearly twice as much time teaching number facts as did those teaching cognitively guided classes. Children from cognitively guided classes also outperformed other children on measures of complex addition and subtraction, problem solving, and word problems.

Research presented at the meetings indicates that these methods of instruction may be particularly effective with children who are labeled poor achievers (Peterson et al., in press), since cognitively oriented instruction has been found to reduce learning difficulties for children at various developmental levels. These studies suggest that this approach enables children to set goals and learn to combine relevant mathematics information one to two years earlier than in traditional classrooms. In addition, some children from cognitively guided classrooms, who were judged to have "low ability," were found to be able to do addition and subtraction of whole numbers as much as four grade levels above their current grade (Fuson and Secada, 1986).

REDIRECTING THE FIRST YEARS OF SCHOOL

The approaches to literacy and mathematics instruction described above link teaching and learning to the developmental needs of very young children. They integrate content with the children's everyday experiences and stress broad-based learning rather than isolated skill development and retention of unrelated facts. Although teachers guide the class, children are individually, actively engaged, so they can incorporate increasingly complex knowledge as they develop their own problem-solving strategies. Assessment is essential to these approaches to help teachers teach, gather objective information on student progress, and ensure accountability.

With these approaches, the need for readiness testing, retention, and special placement is minimized because instruction is individualized and organized around the principle that children of various ability levels learn at their own pace and from each other. There is also less emphasis on standardized testing and scores, since these fail to provide adequate information about the child's knowledge, skills, and motivation. Workshop discussions made it clear that these approaches are far more appropriate for very young children than the emphasis on drill and practice now in vogue.

5
Implications for Policy and Practice

A common theme throughout the meetings was that educators, policy makers, and parents need to take a close look at the current practices and recent trends in the schools regarding early childhood education. Workshop participants expressed concern about the harm caused by the growing use of rote academic curriculum and instruction, standardized testing, and the resulting large increases in student retention and tracking in kindergarten and first grade. Alternative methods of instruction and assessment are needed to improve young children's early school experiences and to better prepare them for later grades. Action is called for, on the part of parents, teachers, school administrators, and policy makers, in three areas: testing, instruction, and retention and tracking.

Over the course of the meetings, a number of common themes emerged with direct policy implications. Although participants did not propose specific recommendations, they did draw similar conclusions about how to improve instruction and assessment in early childhood education programs. Their general conclusions and ideas for action are described below.

TESTING

Standardized testing of children ages 4 to 8 provides an inaccurate measure of their knowledge, abilities, and skills. Test scores may indicate how well-prepared children are to perform on test, but they do not measure a child's real understanding and knowledge, problem-solving abilities, abilities to integrate and transfer knowledge from one situation to another, or motivation. For young children, standardized tests do not even accurately predict how well they will perform in the later grades or even in a year's time.

Most standardized tests now widely used to test kindergarten and first grade children fail to meet technical and professional standards. They should not be used by teachers, administrators, and parents as they are now, to make decisions that will affect a child's educational career.

The widespread use of average standardized test scores to judge school effectiveness or classroom performance in the lower grades is not warranted. The narrow range of skills measured by these tests is irrelevant to what young children need to learn to be well educated. Yet the pressure of the tests as measures of accountability has made teachers "teach to the test." It is now risky for teachers to adopt a developmentally appropriate curriculum, but alternative methods of assessment exist. Although these assessment strategies require considerable time and training, they show promise of helping teachers to do a better job in teaching young children, while serving the purposes of accountability as well.

- Standardized tests should not be used alone or as the major source of information to make any major educational decisions (such as retention, delayed entry, or special placement) about individual young children.
- Performance-based assessment should be used instead of standardized tests to plan instruction and evaluate the progress of children in the primary grades.
- States and school systems should consider delaying large-scale assessments of academic achievement until the third or fourth grade, because of the natural variations in levels and rates of development of young children. Representative samples of students should be tested for accountability purposes (rather than testing every child in a district or state) to reduce costs of these tests and make funds available for more performance-based, individualized assessments of younger children.
- Accountability of teachers and schools at all grade levels should move toward performance-based assessment of higher-order cognitive processes and meaningful skills—not only knowledge of facts.

CURRICULUM AND INSTRUCTION

Stressing academics in kindergarten and first grade runs counter to the natural developmental learning processes of young children. If children are not given a broader and more solid conceptual base in their first years in school, they may have difficulty mastering more complex information, understanding what they have learned, and applying it. Teacher-controlled instruction that relies heavily on drill and practice and emphasizes getting the "correct" answer undermines children's self-confidence and their intrinsic interest in school tasks. It is in the nation's as well as the child's best interests to teach young children in ways that are appropriate to their devel-

opmental levels, and in ways that allow for the natural variations in their progress in these years.

- Curriculum and instruction in kindergarten and first grade should promote broad-based conceptual knowledge, reflective thinking, and problem-solving techniques that incorporate basic skills.
- Instruction should be individualized and based on each child's specific developmental and educational needs.
- Curriculum and instruction in the early years should encourage active learning more than rote memorization and drill.

RETENTION AND TRACKING

Widespread standardized testing of very young children has led to increased tracking of children into ability groups, transitional programs, delayed kindergarten entry, and retention in kindergarten and first grade. These decisions are unwise and often unwarranted. Since some children are more likely to be held back in grade—namely the youngest children, boys, and children from minority or low income families—the increase in retention and tracking will have distorting effects on future classes, schools, and the students themselves. Besides, since most of these supposedly "slower" children catch up to their peers by third grade, this widespread practice is unnecessary.

- The practice of starting young children on separate tracks through ability grouping, transition programs, and delayed kindergarten and first grade should be ended whenever possible.
- Teachers should be given the support they need to implement alternative methods of instruction that take advantage of student diversity. Support could include more diverse materials, media, peer tutoring, and after-school and summer enrichment programs to provide for students who need them, or ungraded primary unit programs that allow students to progress at varying rates in multiage classrooms.
- Reliable screening instruments should be used to detect medical, hearing, and vision impairments in children that could cause delayed or abnormal development. Children identified as potentially at risk for developmental problems should be referred to multidisciplinary diagnostic teams for additional testing and observations and to plan the appropriate interventions to meet the child's special needs.

Reversing the trends in early education which the workshops and Wingspread conference identified will require many different actions by different groups.

- Decision makers, administrators, teachers, parents, and the public need

a more accurate picture of how young children learn and develop most effectively and which methods of instruction best promote such learning.

- Policy makers and administrators need to understand that tracking and extensive retention in the early years are unnecessary and counterproductive for children.
- Parents should question teachers' decisions to track or retain very young children and encourage their schools to adopt developmentally responsive strategies for very young children.
- Teachers need training and support so they can adopt alternative forms of instruction, which would allow them to manage a more diverse group of young children in their classrooms.
- The testing industry should develop and market alternative assessment methods, pursuing some of the leads research has already explored.
- Decision makers need to recognize and understand the shortcomings and limitations of standardized testing of young children for accountability and placement decisions.

Only when these different groups act will our nation's schools begin to change their approach to early childhood education. Only then will the new generation of children be well served by the schools in the early years.

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Appendix
Agendas and Participants

The Wingspread Conference
Improving Instruction and Assessment
in Early Childhood Education: Policy Implications
May 31 - June 2, 1990

Workshop on Improving Instruction and Assessment
in Early Childhood Education: Implementation Strategies
November 13-14, 1989

Workshop on Improving Instruction and Assessment
in Early Childhood Education: Alternative Strategies
June 22, 1989

Workshop on Testing, Tracking, and Retention
in Early Childhood Education
November 30, 1988

THE WINGSPREAD CONFERENCE
IMPROVING INSTRUCTION AND ASSESSMENT IN EARLY CHILDHOOD EDUCATION: POLICY IMPLICATIONS

May 31 - June 2, 1990

AGENDA

Thursday, May 31, 1990

6:30 p.m.	Dinner
7:30 p.m.	Plenary Session
	Welcome to Wingspread Charles W. Bray - The Johnson Foundation
	Welcome and Introduction Eugene E. Garcia - University of California, Santa Cruz Gene Wilhoit - National Association of State Boards of Education
	Keynote Address Nancy S. Cole - Educational Testing Service
9:00 p.m.	ADJOURNMENT

Friday, June 1, 1990

9:00 a.m.	Plenary Session
	Readiness Testing Problems and Consequences Samuel J. Meisels - University of Michigan Barbara Bowman - Erikson Institute
9:30 a.m.	Discussion
10:30 a.m.	Coffee and tea
10:45 a.m.	Plenary Session
	Panel
	State Strategies for Accountability and Excellence in Early Childhood Education Robert Cervantes - California Department of Education Delia Pompa - Texas Education Agency James E. Sauter - Minnesota Department of Education

11:15 a.m.	Discussion
12:00 noon	Luncheon
1:00 p.m.	Plenary Session Terrace Room
	Young Children Becoming Readers and Writers Elizabeth Sulzby - University of Michigan Annemarie Palincsar - University of Michigan
1:45 p.m.	Discussion
2:30 p.m.	*Young Children Solving Problems and Learning Math* Penelope Peterson - Michigan State University Mara Krechensky - Harvard Graduate School of Education
3:00 p.m.	Discussion
3:45 p.m.	Refreshments
4:00 p.m.	Plenary Session
	Panel
	Changing the Stakes in Assessment and Accountability — the Local Perspective Esther Simmons Lauderman - Williamstown Elementary School Debby Murphy - Maplewood Elementary School Beth Bellemere - Scarborough School Department Willa Spicer - South Brunswick Board of Education
4:30 p.m.	Discussion
6:30 p.m.	Dinner
8:00 p.m.	ADJOURNMENT

Saturday, June 2, 1990

9:00 a.m.	Plenary Session Terrace Room
	Making the Links to Federal Programs Mary S. Lewis - Head Start Bureau William Lobosco - U.S. Department of Education Kathy Hebbeler - U.S. Department of Education
9:45 a.m.	Discussion
10:30 a.m.	Coffee and tea
10:45 a.m.	Plenary Session

Panel

Legislative Initiatives for Improving Instruction and Assessment in Early Childhood Education
C. Arthur Ollie - Iowa House of Representatives
Mary Panzer - Wisconsin State Assembly
Lyle Sattes - West Virginia House of Delegates

11:15 a.m. Discussion

11:45 a.m. *Assessing Schools' Readiness for Young Children*
Eugene E. Garcia - University of California, Santa Cruz
Thomas Schultz - National Association of State Board of Education

12:00 noon Discussion

12:30 p.m. Luncheon

1:30 p.m. CONFERENCE ADJOURNS

PARTICIPANTS

May 31 - June 2, 1990

Betty Bardige, A.L. Mailman Family Foundation, Cambridge, MA
Beth Bellemere, Scarborough School Department, Scarborough, ME
Deborah Both, National Forum on the Future of Children and Families, Washington, DC
Barbara Bowman, Erikson Institute, Chicago, IL
Robert Cervantes, California Department of Education, Sacramento, CA
Nancy Cole, Educational Testing Service, Princeton, NJ
Jack Foster, Education and Humanities Cabinet, State of Kentucky, Frankfort, KY
Laurie Garduque, National Forum on the Future of Children and Families, Washington, DC
Kathy Hebbeler, U.S. Department of Education, Washington, DC
Keith Johnson, Louisiana State Board of Elementary and Secondary Education,
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James Jones, New Jersey State Board of Education, Teaneck, NJ
Mara Krechensky, Harvard Graduate School of Education, Cambridge, MA
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Elizabeth Sulzby, School of Education, University of Michigan, Ann Arbor, MI
Philip Swain, National Association of State Boards of Education, Seattle, WA
Gene Wilhoit, National Association of State Boards of Education, Alexandria, VA
Mary Willis, Office of the Governor, State of South Carolina, Columbia, SC

Wingspread Fellows

Kevin Baird, Carleton College, Northfield, MN
T. Thompson Bosworth, University of Wisconsin-Milwaukee, Milwaukee, WI
Kathryn Fischer, University of Wisconsin-Parkside, Racine, WI
Shelley Seyller, Aurora University, Sycamore, IL

The Johnson Foundation Staff

Richard Kinch, Conference Program Officer
Charles W. Bray, President
M. Jon Vondracek, Vice President for Program and Public Communications
Jacquelyn Heath, Manager of Public Communications
Deborah Redmond, Conference Support Specialist

WORKSHOP ON IMPROVING INSTRUCTION AND ASSESSMENT IN EARLY CHILDHOOD EDUCATION: IMPLEMENTATION STRATEGIES

November 13-14, 1989

AGENDA

Monday, November 13, 1989

8:00 a.m.	Continental Breakfast
8:30 a.m.	WELCOME AND OVERVIEW Eugene Garcia
9:00 a.m.	STATE POLICY SCENARIO

Commission Members
Gloria Cabe
Mary Willis
Pat Hamner
Tynette Hills

Witnesses (1 hour)
Karen Wixson - University of Michigan
Sharon Schattgen - University of Missouri
Robert Slavin - Center for Disadvantaged Students
Stan Bernknopf - Georgia State Department of Education

Commission Questions (30 minutes)

10:30 a.m.	Break
10:45 a.m.	*Discussion*
12:00 noon	Lunch
1:30 p.m.	LOCAL POLICY SENARIO

Task Force Members
John Lindley
David Bennett
Donna Foglia
Freddie Nichols

Witnesses (1 hour)
Linda Darling-Hammond - Teachers' College, Columbia U.
Lorrie Shepard - University of Colorado
Elizabeth Sulzby - University of Michigan
Brenda Engle - Lesley College
Barbara Bowman - Erikson Institute

Task Force Questions (30 minutes)

2:30 p.m. Break

2:45 p.m. *Discussion*

4:00 p.m. RECESS

6:00 p.m. Dinner - Germaines, 2400 Wisconsin Ave., NW

Tuesday, November 14, 1989

8:30 a.m. Continental Breakfast

9:00 a.m. THE NATIONAL AGENDA

National Governors' Association Task Force on Education-Setting National Education Goals
Michael Cohen, NGA
Gloria Cabe, Governors' Office, AR

National Center for Education Statistics Data Collection-Plans for Early Childhood Education
Emerson Elliot, NCES (tentative)

10:30 Break

10:45 MEDIA RELATIONS STRATEGY
Mary Jane Gallagher, Gallagher/Widmeyer Associates
Lisa Walker, Education Writers Association

11:45 NEXT STEPS
Gene Garcia

12:30 Lunch
ADJOURNMENT

PARTICIPANTS

November 13-14, 1989

Eugene Garcia (Chair), Board of Education, University of California, Santa Cruz, CA
David Bennett, Superintendent of Schools, St. Paul, MN
Stan Bernknopf, State Department of Education, Atlanta, GA
Deborah Both, National Forum on the Future of Children and Families, Washington, DC
Barbara Bowman, Erikson Institute, Chicago, IL
Gloria Cabe, Governor's Office, Little Rock, AR
Michael Cohen, National Governors' Association, Washington, DC
Linda Darling-Hammond, Department of Curriculum & Instruction, Teachers College, New York, NY
Emerson Elliott, National Center for Education Statistics, Washington, DC
Brenda Engel, Lesley College, Cambridge, MA
Donna Foglia, Norwood Creek Elementary School, San Jose, CA
Mary Jane Gallagher, Gallagher/Widmeyer Inc., Washington, DC
Laurie Garduque, National Forum on the Future of Children and Families, Washington, DC
Pat Hamner, National Association of State Boards of Education, Buchannon, WV
Tynette Hills, New Jersey State Department of Education, Trenton, NJ
Sharon Lynn Kagan, Yale University, New Haven, CT
John Lindley, South Colby Elementary School, Port Orchard, Washington
Freddie Nichols, National School Boards Association, Gladstone, MO
Bella Rosenberg, American Federation of Teachers, Washington, DC
Sharon Schattgen, Center on Educational Assessment, University of Missouri-Columbia Columbia, MO
Thomas Schultz, National Association of State Boards of Education, Alexandria, VA
Lorrie Shepard, Laboratory of Educational Research, University of Colorado, Boulder, CO
Robert Slavin, Center for Research on Disadvantaged Students, Baltimore, MD
Elizabeth Sulzby, School of Education, University of Michigan, Ann Arbor, MI
Lisa Walker, Education Writers Association, Washington, DC
Mary Willis, Office of the Governor, Columbia, SC
Karen Wixson, University of Michigan, Ann Arbor, MI

WORKSHOP ON IMPROVING INSTRUCTION AND ASSESSMENT IN EARLY CHILDHOOD EDUCATION: ALTERNATIVE STRATEGIES

June 22, 1989

AGENDA

8:00 a.m.	Continental Breakfast
8:30 a.m.	WELCOME AND OVERVIEW
9:00 a.m.	YOUNG CHILDREN BECOMING READERS AND WRITERS Annemarie Palincsar - Michigan State University Elizabeth Sulzby - University of Michigan
9:30 a.m.	Discussion
10:30 a.m.	Break
10:45 a.m.	YOUNG CHILDREN SOLVING PROBLEMS AND LEARNING MATHEMATICS Paul Cobb - Purdue University Tom Carpenter - University of Wisconsin
11:15 a.m.	Discussion
12:00 noon	Lunch
1:00 p.m.	CREATING A WHOLE LITERACY CURRICULUM Alice J. Arakaki - Kamehameha Schools
1:15 p.m.	Discussion
2:00 p.m.	DEVELOPING APPROPRIATE ASSESSMENT STRATEGIES Ted Chittenden - Educational Testing Service (ETS)
2:15 p.m.	Discussion
2:45 p.m.	Break
3:00 p.m.	CHANGING THE STAKES IN ASSESSMENT AND ACCOUNTABILITY Linda Darling-Hammond - RAND Corporation
3:15 p.m.	Discussion
4:15 p.m.	CLOSING REMARKS
4:30 p.m.	ADJOURNMENT

PARTICIPANTS

June 22, 1989

Eugene Garcia (Chair), Board of Education, University of California, Santa Cruz, CA
Alice J. Kawakami Arakaki, Kamehameha Schools/Bernice Pauahi Bishop Estate, Honolulu, HI
Erlinda Archuleta, Denver Public Schools, Denver, CO
Deborah Both, National Forum on the Future of Children and Families, Washington, DC
Barbara Bowman, Erikson Institute, Chicago, IL
David Bennett, Superintendent of Schools, St. Paul, MN
Gloria Cabe, Governor's Office, Little Rock, AR
Tom Carpenter, Wisconsin Center for Education Research, Madison, WI
Ted Chittendon, Educational Testing Service, Princeton, NJ
Paul Cobb, Purdue University, West Lafayette, IN
Linda Darling-Hammond, RAND Corporation, Washington, DC
Donna Foglia, San Jose, CA
Laurie Garduque, National Forum on the Future of Children and Families, Washington, DC
Tynette Hills, New Jersey State Department of Education, Trenton, NJ
Sharon Lynn Kagan, Yale University, New Haven, CT
Samuel J. Meisels, Center for Human Growth and Development, University of Michigan, Ann Arbor, MI
Annemarie Palincsar, Michigan State University, East Lansing, MI
Thomas Schultz, National Association of State Boards of Education, Alexandria, VA
Lynn Stuart, Cambridge School Department, Cambridge, MA
Elizabeth Sulzby, School of Education, University of Michigan, Ann Arbor, MI
Myrtis Taylor, Atlanta Public Schools, Atlanta, GA

WORKSHOP ON IMPROVING INSTRUCTION AND ASSESSMENT IN EARLY CHILDHOOD EDUCATION: IMPLEMENTATION STRATEGIES

November 13-14, 1989

AGENDA

Monday, November 13, 1989

8:00 a.m. Continental Breakfast

8:30 a.m. WELCOME AND OVERVIEW
Eugene Garcia

9:00 a.m. STATE POLICY SCENARIO

Commission Members
Gloria Cabe
Mary Willis
Pat Hamner
Tynette Hills

Witnesses (1 hour)
Karen Wixson - University of Michigan
Sharon Schattgen - University of Missouri
Robert Slavin - Center for Disadvantaged Students
Stan Bernknopf - Georgia State Department of Education

Commission Questions (30 minutes)

10:30 a.m. Break

10:45 a.m. *Discussion*

12:00 noon Lunch

1:30 p.m. LOCAL POLICY SENARIO

Task Force Members
John Lindley
David Bennett
Donna Foglia
Freddie Nichols

Witnesses (1 hour)
Linda Darling-Hammond - Teachers' College, Columbia U.
Lorrie Shepard - University of Colorado
Elizabeth Sulzby - University of Michigan
Brenda Engle - Lesley College
Barbara Bowman - Erikson Institute

Task Force Questions (30 minutes)

2:30 p.m. Break

2:45 p.m. *Discussion*

4:00 p.m. RECESS

6:00 p.m. Dinner - Germaines, 2400 Wisconsin Ave., NW

Tuesday, November 14, 1989

8:30 a.m. Continental Breakfast

9:00 a.m. THE NATIONAL AGENDA

National Governors' Association Task Force on Education-Setting National Education Goals
Michael Cohen, NGA
Gloria Cabe, Governors' Office, AR

National Center for Education Statistics Data Collection-Plans for Early Childhood Education
Emerson Elliot, NCES (tentative)

10:30 Break

10:45 MEDIA RELATIONS STRATEGY
Mary Jane Gallagher, Gallagher/Widmeyer Associates
Lisa Walker, Education Writers Association

11:45 NEXT STEPS
Gene Garcia

12:30 Lunch
ADJOURNMENT

PARTICIPANTS

November 30, 1988

Eugene Garcia (Chair), Board of Education, University of California, Santa Cruz, CA
Ann Barns, Chapel Hill, NC
David Bennett, Superintendent of Schools, St. Paul, MN
Roseann Bentley, State Board of Education, Springfield, MO
Michelle Bodden, Public School 41, Brooklyn, NY
Deborah Both, National Forum on the Future of Children and Families, Washington, DC
Barbara Bowman, Erickson Institute, Chicago, IL
Sue Bredekamp, National Association for the Education of Young Children, Washington, DC
Gloria Cabe, Governor's Office, Little Rock, AR
Suzanne Callahan, Holt-Rinehart & Winston, Libertyville, IL
Ted Chittendon, Educational Testing Service, Princeton, NJ
Emmett Dupree, Fowler Drive Elementary School, Athens, GA
Donna Foglia, San Jose, CA
Laurie Garduque, National Forum on the Future of Children and Families, Washington, DC
Therese Gnezda, National Resource Center for Children in Poverty, Columbia University, New York, NY
Tynette Hills, New Jersey State Department of Education, Trenton, NJ
Shari Iba, Fort Lauderdale, FL
Sharon Lynn Kagan, Yale University, New Haven, CT
Ann Kahn, Fairfax, VA
Dorothy Leonardi, Fort Washington Forest Elementary School, Fort Washington, MD John Lindley, South Colby Elementary School, Port Orchard, WA
Frank Logue, Gesell Institute, New Haven, CT
Samuel J. Meisels, Center for Human Growth and Development, University of Michigan, Ann Arbor, MI
Luis Moll, Department of Language, Reading, and Culture, University of Arizona, Tucson, AZ
Richard Owens, National Association of State Boards of Education, Ocilla, GA
Annemarie Palincsar, Michigan State University, East Lansing, MI
Penelope Peterson, College of Education, Michigan State University, East Lansing, MI

Lorrie Shepard, Laboratory of Educational Research, University of Colorado, Boulder, CO
Marjorie Smith, St. Louis, MO
Deborah Stipek, Graduate School of Education, University of California, Los Angeles, CA

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